

REMARKS

This Amendment is in response to the Office Action mailed October 30, 2001. In the Office Action, the Examiner rejected claims 13 and 16 under 35 U.S.C. § 102 and claims 14, 15, and 17-34 under 35 U.S.C. § 103. Claims 13-34 remain pending in the application. Reconsideration in light of the amendments and remarks made herein is respectfully requested.

Drawings

1. The Examiner objects to the drawings under 37 CFR 1.83(a). The Examiner requests that "masking all surfaces except for the edge of the bond shelf (claim 18, lines 4-5), a [plating] gold on the copper (claim 19, line 5) and steps shown in claim 30 must be shown or the features canceled from the claim(s)."

Applicants submit that Figures 5, 6, and 7 show the limitations in claim 18, lines 4-5, and claim 19, line 5, recited above.

Figure 5 shows the "masking of all surfaces except for the edge of the bond shelf" (see also supporting description in page 8, line 24-27). For purposes of clarity, Figure 5 has been amended to label the edge 43 of the bond shelf.

Figures 6 and 7 illustrates "plating gold onto copper" by dipping the masked housing 11 into a plating bath 52 (Figure 7 shows the plated conductive strips 44 and 46 formed by this

process). This process is further described in the description of the invention page 8, lines 24, to page 9, line 8. At page 9, line 1, the specification is being amended to correctly refer to Figure 6 ("... then dipped into a plating bath 52 as shown in Figure 6 5.").

2. The Examiner rejected the proposed drawing corrections filed on January 3, 2002 because "[t]he original disclosure does not support the showing of the different layers of bonding pads from the conductive strips 44 and 46." Applicants respectfully traverse.

Applicants assume that the Examiner is referring to the drawing corrections made in Figures 1 and 4, showing the conductive strips 44 and 46 on a separate layer than bonding pad(s) 16. Applicants point to Figure 7 of the original application to support the proposed correction to these figures. In Figure 7, the conductive strips 44 and 46 are shown to be on a separate layer than the bonding pad(s) 16. That is, the conductive strips 44 and 46 overlap the bonding pad 16. The corrections to Figures 1 and 4 merely reconcile the structures and labels shown in the different figures. No new matter is being added.

Applicants respectfully request that the Examiner allow the proposed drawing corrections filed on January 3, 2002 to be entered.

Specification

3. The Examiner objected to the specification as failing to provide proper antecedent basis for the claimed subject matter. In particular, the Examiner objected the limitation "plating gold onto the copper" in claim 19, line 5.

Applicants submit that the specification as claimed supports the limitation "plating gold onto copper". Page 9, lines 2-3, of the specification recites "The plating bath 52 plates a conductive material such as copper onto the edge of the first bond self 18." And page 9, lines 7-8, recites "All exposed copper surfaces may then be plated with gold." Therefore, the specification supports "plating gold onto copper" as claimed. The Examiner is respectfully requested to withdraw his objection.

4. The Examiner objected to the Abstract of the disclosure because, allegedly, it does not describe a method for assembling an electronic package sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

Applicants have amended the abstract to comply with Examiner's request. A new abstract appears above on a separate page. No new matter has been added.

5. The Examiner also objected to the amendment to pages 7-9 of the specification under 35 U.S.C. 132 because the amendments

allegedly introduce new matter into the disclosure. Applicants respectfully traverse.

Under MPEP §706.03(O) and 35 U.S.C. 132 an objection to new matter introduced by amendment should include "such information and references as may be useful in judging the propriety of continuing the prosecution of his application." While the Examiner noted the objection is to the proposed amendments to pages 7-9 of the application, it is unclear to Applicants exactly which of the unsubstantial amendments in pages 7-9 are being objected to. Applicants respectfully request the Examiner clarify the matter objected to so that Applicants can ascertain the propriety of the rejection.

Furthermore, Applicants assert that the amendments proposed in the Response of 10-29-01 are insubstantial, add no new matter, and were made merely to clarify that which was already disclosed in the figures and other parts of the specification. For example, the amendments starting on page 7, line 23, the amendments made merely reconcile the terminology employed with labels 24, 26, 28, and 30, in other parts of the document. That is, labels 24, 26, and 30 are properly referred to as "busses" while label 28 is properly referred to as "routing traces". (see page 7, line 2) Additionally, the amended phrase "... different layers of bond pads 16 ..." merely recites what is shown in Figure 1. Likewise, the amendments in page 8 and 9 are supported by the specification and merely recite what is shown in the figures. If the Examiner persists with this objection,

Applicants respectfully request the Examiner clarify the matter objected to so that Applicants can ascertain the propriety of the rejection.

Applicants respectfully request that the Examiner withdraw his objection to the proposed amendments and allow them to be entered.

Rejection Under 35 U.S.C. § 112

7. The Examiner rejected claim 18 under 35 U.S.C. § 112, second paragraph, as containing subject matter which was not described in the specification. In particular, the Examiner states that the original specification fails to provide support for the language "masking all surfaces except for the edge of the bond shelf." Applicants respectfully traverse.

On page 8, lines 24-27, the specification states "[t]he conductive strips 44 and 46 can be formed by initially masking off all surfaces of he package housing, except the edge of the third shelf 22 with a plating resistant maskant, as shown in Figure 5." Applicants amended this portion of the specification to "The conductive strips 44 and 46 can be formed by initially masking off all surfaces of the package housing, except the edge of the **first bonding shelf 18** with a plating resistant maskant 50, as shown in Figure 5." The bolded portions in the original and amended sentences show the changes made. These changes were made to correct an error in the identification of the structure. Figure 5 clearly shows that all surfaces of the package housing

except the edge of the bond shelf are masked. Figure 4, clearly shows that the first bonding shelf 18 has a conductive edge 44 and 46 along the edge and therefore should have been referenced instead of the third shelf 22.

Additionally, this exact change was entered in the issued parent application (U.S. Patent No. 6,153,829, App. No. 09/153,630.), without objection by the Examiner. The proposed amendment merely reconciles the present application with what is disclosed in the issued parent application.

Applicant respectfully requests that the Examiner withdraw the objection made to claim 18 under 35 U.S.C. § 112, second paragraph.

9. The Examiner rejected claim 18 under 35 U.S.C. § 112, second paragraph, as being indefinite. In particular, the Examiner states that the language "masking all surfaces except for the edge of the bond shelf" renders the claim vague and indefinite. Applicants respectfully traverse.

The Examiner states "it is unclear which one of the shelf has this feature." (Office Action, page 4).

Applicants assert that just a single bond shelf is defined in independent claim 13 ("forming a housing ... located on a bond shelf which has an edge"). Therefore, it is clear that the bond shelf claimed in claim 13 is the same bond shelf being referenced in claim 18 ("masking all surfaces except for the

edge of the bond shelf). No other instance of a bond shelf is directly or indirectly set out in the claims.

Additionally, the Examiner states "it is unclear which edge the claim limitation is referring to, since all the edges are masked." (Office Action, page 4).

Applicants assert that just a single edge is defined in independent claim 13 ("... a bond shelf which has an edge"). Therefore, it is clear that the edge claimed in claim 13 is the same edge being referenced in claim 18 ("masking all surfaces except for the edge of the bond shelf"). No other instance of an edge is directly or indirectly set out in the claims.

Applicants respectfully request that the Examiner withdraw the rejection of claims 18-21 under 35 U.S.C. § 112, second paragraph, as being vague and/or indefinite.

Rejection Under 35 U.S.C. § 102

11. The Examiner rejected claims 13 and 16 under 35 U.S.C. 102(b) as being anticipated by Arai et al. (U.S. Pat. No. 5,206,986).

Applicants note that the cited patent, Arai et al. (U.S. Pat. No. 5,206,986) has not been entered into the Notices of References Cited. The Examiner is respectfully requested to enter this cited prior art patent into the record.

The Examiner has not identified the elements of claims 13 and 16 that are allegedly found in Arai et al. with sufficient specificity and clarity to permit Applicants to ascertain the propriety of the rejection. In particular, it is unclear what elements the Examiner considers the bond pad and bond shelf in Figure 1. The Examiner is respectfully requested to clarify which elements in Arai et al. are being relied upon for this rejection. Applicants will attempt to interpret the Examiner's rejection as best as possible.

The Examiner appears to consider surface 14 in Figure 1 of Arai et al. a bond shelf. However, this is a flat metal member (Col. 7, line 64) not a shelf. According to Merriam Webster's Collegiate Dictionary, 10th Edition, shelf is defined as "a thin flat usually long and narrow piece of material fastened horizontally." The surface 14 is neither long nor narrow nor fastened horizontally. Therefore, surface 14 is not a shelf. Applicants refer the Examiner to Figures 1 and 2 of the present application for an example of a shelf 18.

The Examiner points to a conductive strip 58 in Figure 1 of Arai et al. as the claimed element forming the conductive strip. However, the strip 58 is not along any edge of the bond shelf as claimed. Even if the insulator layer 50 is a bond shelf, the conductive strip 58 is not formed along its edge. See Figure 4, element 44 as an example of a conductive strip 44 along a bond shelf 18 edge. Therefore, Arai et al. fails to show this claimed element.

For the reasons stated above, Applicants respectfully requests that the Examiner withdraw the rejection of claims 13 and 16 under 35 U.S.C. § 102(b) as being anticipated by Arai et al. (5,206,986).

Rejection Under 35 U.S.C. § 103

13. The Examiner rejected claims 14-15, and 17 under 35 U.S.C. § 103(a) as being unpatentable over Arai et al. (U.S. Pat. No. 5,206,986) in view of Sebesta (U.S. Pat. No. 6,014,809).

While Applicants disagree with the Examiner's assertion that Aria et al. in view of Sebesta teach or suggest the claimed invention, it is unnecessary to reach this argument since dependent claims 14, 15, and 17 are in condition of allowance as a result of their dependence on independent claim 13 (see arguments above).

Applicants respectfully requests that the Examiner withdraw the rejection of claims 14, 15, and 17 under 35 U.S.C. § 103(a) as being unpatentable over Arai et al. (5,206,986) in view of Sebesta (6,014,809).

14. The Examiner rejected claims 21-24 and 27 under 35 U.S.C. § 103(a) as being unpatentable over Nakayama et al. (U.S. Pat. No. 5,877,553) in view of Sebesta (U.S. Pat. No. 6,014,809).

The Examiner has not identified the elements of claim 21 which are allegedly found in Nakayama et al. with sufficient specificity and clarity to permit Applicants to ascertain the

propriety of the rejection. In particular, it is unclear what elements the Examiner considers the bond pad and bond shelf in Figures 1 & 2 of Nakayama et al. The Examiner is respectfully requested to clarify which elements in Nakayama et al. are being relied upon for this rejection. Applicants will attempt to interpret the Examiner's rejection as best as possible.

The Examiner asserts that Sebesta discloses wrapping a conductive strip around the edge to a conductor located below the strip. This assertion is not supported by the disclosure in Sebesta. In particular, Sebesta does not teach or suggest that the conductive strip wraps around the edge of the first bond shelf to contact a conductor under the first bond shelf. The Examiner's reference to Figures 4-6 and col. 1, lines 24-25, do not support such assertion. Sebesta fails to show how the portion of the conductive strip that wraps around the edge is employed; it does not teach or suggest that the conductive strip contacts a conductor under the first bond shelf.

Applicants respectfully requests that the Examiner withdraw the rejection of claims 21-24 and 27 under 35 U.S.C. § 103(a) as being unpatentable over Nakayama et al. (5,877,553) in view of Sebesta (6,014,809).

15. The Examiner rejected claims 25-26 and 27 under 35 U.S.C. § 103(a) as being unpatentable over Nakayama et al. (U.S. Pat. No. 5,877,553) in view of Sebesta (U.S. Pat. No. 6,014,809) and further in view of Japp et al. (U.S. Pat. No. 6,073,344).

Applicants submit that Japp et al. cannot serve as a prior art reference due to its later filing date. The present application claims a priority filing date of September 15, 1998, based on the parent application 09/153,630, while Japp et al. has a filing date of January 28, 1999. Therefore, Japp et al. cannot serve as an invalidating prior art reference.

Applicants respectfully requests that the Examiner withdraw the rejection of claims 25-26 under 35 U.S.C. § 103(a) as being unpatentable over Nakayama et al. (5,877,553) in view of Sebesta (6,014,809) and further in view of Japp et al. (6,073,344).

16. The Examiner rejected claims 28-29 under 35 U.S.C. § 103(a) as being unpatentable over Nakayama et al. (U.S. Pat. No. 5,877,553) in view of Sebesta (U.S. Pat. No. 6,014,809) and further in view of Lee (U.S. Pat. No. 5,089,878).

While Applicants disagree with the Examiner's assertion that Nakayama et al. in view of Sebesta and further in view of Lee teach or suggest the claimed invention, it is unnecessary to reach this argument since dependent claims 28-29 are in condition of allowance as a result of their dependence on independent claim 21 (see arguments above).

Applicants respectfully requests that the Examiner withdraw the rejection of claims 28-29 under 35 U.S.C. § 103(a) as being unpatentable over Nakayama et al. (5,877,553) in view of Sebesta (6,014,809) and further in view of Lee (5,089,878).

17. The Examiner rejected claims 30-34 under 35 U.S.C. § 103(a) as being unpatentable over Nakayama et al. (U.S. Pat. No. 5,877,553) in view of Sebesta (U.S. Pat. No. 6,014,809) in view of Lee (U.S. Pat. No. 5,089,878) and further in view of Hamzehdoost et al. (U.S. Pat. No. 5,491,362).

While Applicants disagree with the Examiner's assertion that Nakayama et al. in view of Sebesta in view of Lee and further in view of Hamzehdoost et al. teach or suggest the claimed invention, it is unnecessary to reach this argument since dependent claims 30-34 are in condition of allowance as a result of their dependence on independent claim 21 (see arguments above).

Applicants respectfully requests that the Examiner withdraw the rejection of claims 30-34 under 35 U.S.C. § 103(a) as being unpatentable over Nakayama et al. (5,877,553) in view of Sebesta (6,014,809) in view of Lee (5,089,878) and further in view of Hamzehdoost et al. (5,491,362).

Marked-up Version of the Specification as Amended

Starting on page 8, line 24, to page 9, line 8.

The conductive strips 44 and 46 can be formed by initially masking off all surfaces of the package housing, except the edge of the third shelf 22 with a plating resist maskant 50, as shown in Figure 5. The masked housing can then be dipped into a plating bath 52 as shown in Figure 6 5. The plating bath 52 plates a conductive material such as copper onto the edge 43 of the first bond shelf 18. The maskant 50 is then removed and the notches 48 can be drilled into the edges of the first bond shelf 18 to separate the plated material into the first and second conductive strips 44 and 46. All exposed copper surfaces may then be plated with gold.

Complete set of Marked-up Claims as Amended

1 1-12. (Cancelled)

1 13. (Amended) A method for assembling an electronic package,

2 comprising:

3 forming a housing which has a bond pad located on a bond shelf

4 which has an edge;

5 forming a conductive strip along the edge of the bond shelf; and

6 removing a portion of the conductive strip.

Conclusion

In view of the amendments and remarks made above, it is respectfully submitted that the pending claims are in condition for allowance, and such action is respectfully solicited.

Respectfully submitted,

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